

IN THE SPECIFICATION:

Page 1, please insert the following as the first paragraph:

This application is a U.S. National Phase Application
under 35 USC 371 of International Application
PCT/JP2004/000469 filed January 21, 2004.

Please replace the paragraph at page 7, lines 3-8, with the following amended paragraph:

As described above, the jetted positions of the colorless ink are determined preferentially from the positions which are not adjacent to or overlapped on the jetted positions of the recording ink, and accordingly, the colorless ink and the ~~colorless~~ recording ink can be prevented from being mixed with each other on the recording medium.

Please replace the paragraph at page 9, lines 11-22, with the following amended paragraph:

As a result of a study of the inventor of the present invention, it has been found that, in the case of improving the evenness of the gloss of the recording surface, 2 mm square or less is essential as the maximum unit to be controlled, and 0.5 mm square is more preferable. Resolving power of a human eye has the highest sensitivity at an interval of 0.5 mm when a distance of the eye to the recording medium is set at approximately 30 cm.

Hence, in the case of ensuring evenness of a black density of the recording surface by means of dots of a recording head, it is necessary that the dots be distributed at a spatial frequency higher than the above.

Please replace the paragraph at page 24, lines 11-14, with the following amended paragraph:

Next, each recording head 22 will be described with reference to FIG. 2 and FIG. 3. FIG. 2 is an enlarged perspective view of the carriage 24, 23 and FIG. 3 is a lower surface view of the recording head 22.

Please replace the paragraph at page 26, line 2 to page 27, line 8, with the following amended paragraph:

As shown in FIG. 4, the fixing unit 4 is disposed on a downstream side of the image forming unit 2 in the conveying direction of the recording medium P. In the fixing unit 4, there is provided a conveyor roller 42 extended in a direction perpendicular to the conveying direction of the recording medium P and for supporting and conveying the recording medium P from a lower side thereof. To an upper side of the conveyor roller 42, a heating roller 41 formed of a hollow roller faces. In the inside of the heating roller 41, a heat source 43 such as a halogen lump heater, a ceramic heater and a Nichrome wire is provided. The heating roller 41 is heated by heat of the heat source 43, thermoplastic resin particles contained in an ink

receiving layer of the recording medium P are melted. A temperature sensor 413 (refer to FIG. 5) is built in the heating roller 41. Moreover, a gear 412 is formed on a peripheral edge of an end of the heating roller 41, and meshes with a gear 441 attached onto a heating roller drive motor 44. By these gear 441 and gear ~~441~~ 412, drive force of the heating roller drive motor 44 is adapted to be transmitted to the heating roller 41, and to rotationally drive the heating roller 41 in a predetermined direction. It is preferable that the heating roller 41 be formed of a material high in thermal conductivity so as to make it possible to heat the recording medium P efficiently by the heat radiated from the heat source 43. For example, a metal roller is mentioned. It is preferable that, on the surface of the heating roller 41, fluorine resin be coated in order to prevent contamination owing to the ink at the time of heating and pressurizing the recording medium P. Besides, a silicon rubber roller coated with heat-resistant silicon rubber can also be used.

Please replace the paragraph at page 29, line 9 to page 30, line 1, with the following amended paragraph:

The printer driver 203 includes a rasterizer 204 for converting the image data handled by the application program 201 into color information per dot unit, a color gradation correction module 205 for correcting the image gradation data converted into the color information per dot unit in accordance with color

reproduction property and gradation property of the inkjet printer 1, a halftone module 206 for generating so-called halftone image data expressing a density on a certain area, that is, data for the recording ink, which expresses the jetted position, the adhered amount and the like of the recording ink, by the presence or absence of the recording ink per dot unit from the image data having been subjected to color gradation correction, and a colorless ink calculation module 207 for generating data for the colorless ink, which represents the jetted position and adhered amount of the colorless ink based on the data for the recording ink, which is generated in the halftone module 206.

Please replace the paragraph at page 38, line 10 to page 39, line 3, with the following amended paragraph:

With regard to other types of the micro-porous ink absorbing layer, such an ink solvent absorbing layer may be formed by using a coating solution prepared by combining a polyurethane resin emulsion and a water-soluble epoxy compound and/or acetoacetylated polyvinyl alcohol with each other, and further, combining epichlorohydrin polyamide resin therewith, besides forming the ink solvent absorbing layer by using the inorganic pigment. As the polyurethane resin emulsion in this case, preferable is a polyurethane resin emulsion ~~in~~ which includes a diameter of particles having polycarbonate chains, or having polycarbonate chains and polyester chains, and having is a

diameter of about 3.0 μm . It is more preferable that polyurethane resin of the polyurethane resin emulsion, which is obtained by reacting an aliphatic isocyanate compound and polyol having polycarbonate polyol, or polyol having polycarbonate polyol and polyester polyol with each other have sulfonic acid groups in molecules, and further, have epichlorohydrin polyamide resin and a water-soluble epoxy compound and/or acetoacetylated vinyl alcohol.

Please replace the paragraph at page 48, lines 6-19, with the following amended paragraph:

Note that the coating solution was applied while being heated up to 40°C, and immediately after the application, the recording medium 1 was cooled down for 20 seconds in a cooling zone maintained at 0°C. Thereafter, the recording medium 1 was sequentially dried for 60 seconds in a wind (relative humidity: 15%) of 25°C, for 60 seconds in a wind (relative humidity: 25%) of 45°C, and for 60 seconds in a wind (relative humidity: 25%) of 50°C, and was conditioned in humidity for 2 minutes under the atmosphere where the relative humidity is 40 to 60% \pm 5%. Then, a sample was taken up. Note that the application was performed so that an attached amount of silica could be 18 g/m² in the underlayer, and that an attached amount of silica could be 3 g/m² in the surface layer.

Please replace the paragraph at page 48, lines 20-26, with the following amended paragraph:

To the above-described coating solution, ~~UVITE~~ UVITEX NFW LIQUID (prepared by Ciba Specialty Chemicals Inc.) as a water-soluble fluorescent brightening agent was added to reach an amount of 100 mg/m². Moreover, to the above-described coating solution, the same fluorescent brightening agent was added to reach an amount of 20 mg/m².

Please replace the paragraph at page 54, line 11 to page 55, lines 1-22, with the following amended paragraph:

As the water-soluble organic solvent, for example, mentioned can be alcohols (for example, methanol, ethanol, propanol, isopropanol, butanol, isobutanol, secondary butanol, tertiary butanol, pentanol, hexanol, cyclohexanol, benzyl alcohol, and the like), polyvalent alcohols (for example, ethyleneglycol, diethyleneglycol, triethyleneglycol, polyethyleneglycol, propyleneglycol, dipropyleneglycol, polypropyleneglycol, butyleneglycol, hexanediol, pentanediol, glycerin, hexanetriol, thiodiglycol, and the like), polyvalent alcohol ethers (for example, ethyleneglycol monomethylether, ethyleneglycol monoethylether, ethyleneglycol monobutylether, diethyleneglycol monomethylether, diethyleneglycol ~~monomethylether~~ monoethylether, diethyleneglycol monobutylether, propyleneglycol monomethylether, propyleneglycol monobutylether, ethyleneglycol monomethylether acetate, triethyleneglycol monomethylether, triethyleneglycol

monoethylether, triethyleneglycol monobutylether, ethyleneglycol monophenylether, propyleneglycol monophenylether, and the like), amines (for example, ethanolamine, diethanolamine, triethanolamine, N-methyldiethanolamine, N-ethyldiethanolamine, morpholine, N-ethylmorpholine, ethylenediamine, diethylenediamine, triethylenetetramine, tetraethylenepentamine, polyethyleneimine, pentamethyldiethylenetriamine, tetramethylpropylenediamine, and the like), amides (for example, formamide, N,N-dimethylformamide, N,N-dimethylacetamide, and the like), heterocycles (for example, 2-pyrrolidone, N-methyl-2-pyrrolidone, cyclohexylpyrrolidone, 2-oxazolidone, 1,3-dimethyl-2-imidazolidinone, and the like), sulfoxides (for example, dimethylsulfoxide and the like), sulfones (for example, sulforane and the like), urea, acetonitrile, acetone, and the like). The polyvalent alcohols can be given as a preferable water-soluble organic solvent. Moreover, it is particularly preferable to combine the polyvalent alcohol and the polyvalent alcohol ether.

Please replace the paragraph at page 58, lines 6-26, with the following amended paragraph:

The above-described respective additives were mixed together, dispersed by using a horizontal type bead mill (System Zeta ~~Mini~~ Mill made by Ashizawa Finetech Ltd.) in which zirconia beads of 0.3 mm were filled at a volume fraction of 60%, and a yellow pigment dispersion was thus obtained. A mean particle

diameter of the obtained yellow pigment was 112 nm.

<Preparation of magenta pigment dispersion>

C.I. Pigment Red 122	25 mass%
Joncryn 61 (acrylic-styrene resin prepared by Johnson Polymer Corporation)	18 mass% as solid content
Diethyleneglycol	15 mass%
Ion-exchange water	42 mass%

The above-described respective additives were mixed together, dispersed by using the horizontal type bead mill (System Zeta ~~Mini~~ Mill made by Ashizawa Finetech Ltd.) in which the zirconia beads of 0.3 mm were filled at the volume rate of 60%, and a magenta pigment dispersion was thus obtained. A mean particle diameter of the obtained magenta pigment was 105 nm.

Please replace the paragraph at page 70, lines 11-23, with the following amended paragraph:

Specifically, with regard to the size of the unit area, as a result of a study of the inventor of the present invention, it has been found that, in the case of improving the evenness of the gloss of the recording surface, 2 mm square or less is essential as the maximum unit to be controlled, and 0.5 mm square is more preferable. Resolving power of a human eye has the highest sensitivity at an interval of 0.5 mm when a distance of the eye to the recording medium is set at approximately 30 cm. Hence, in the case of ensuring evenness of a black density of the recording surface by means of dots of the recording head, it is necessary

that the dots be distributed at a spatial frequency higher than the above.

Please replace the paragraph at page 77, line 24 to page 78, line 7, with the following amended paragraph:

Conveying speed of the recording medium in the case of using the heating roller is preferably in a range of 1 to 15 mm/second. This is preferable from a viewpoint of the image quality as well as a viewpoint of high-speed processability. In order to obtain higher texture and gloss, it is preferable to perform the pressurization simultaneously with the heating, or immediately thereafter. As pressure for the pressurization, a range of 9.8×10^4 to 4.9×10^6 Pa is preferable. This is because the pressurization promotes growth of the coating film.

Please replace the paragraph at page 93, line 20 to page 94, line 11, with the following amended paragraph:

In Example 3, a suitable size of the calculation block of the colorless ink was studied. The sum total of the adhered amounts of colorless ink and recording ink was set at 25% and 50% or more, and visual evaluation was performed while changing the size of each block as shown in FIG. 21A and FIG. 21B. Here, $2M \times 2M$ pieces of pixels were used as the blocks, and in the setting at 25%, as shown in FIG. 21A, the colorless ink is formed on all the pixels of an upper left block thereof. In the setting at 50%, as shown in FIG. 21B, the colorless ink dots are formed

on all the pixels of a lower ~~left~~ right block thereof. Length of the block becomes $2M \times 23.5 \mu\text{m}$ assuming that one pixel is equivalent to 1080 dpi. Patches in which this length was changed from 0.09 mm (four-pixel block) to 4.7 mm (200-pixel block) were prepared. In this case, the recording ink was not placed on the medium at all, but only the colorless ink was placed thereon. Evaluation results are shown in Table 1.

Please replace the paragraph bridging pages 94-95 with the following amended paragraph:

From the results, it was understood that the size of the block for controlling the colorless ink was suitably set at 1 mm square or less. In the case of setting the size at 0.94 mm, though the unevenness of the gloss was slightly recognized, the texture like so-called matte gloss appears on the contrary. Accordingly, the above-described setting can be suitably used depending on preferences of a user.